

punctures; prescutum with a complete, longitudinally foveolate furrow; notauli foveolate, U-shaped posteriorly where they are more strongly foveolate but are not depressed; suture between the scutum and scutellum with three strong longitudinal rugae; scutellum shining, with a few fine punctures; dorsal aspect of the propodeum coarsely reticulate and not separated from the posterior aspect which is also coarsely reticulate; mesepisternum reticulate, more strongly so anteriorly, with a rather small, shining, punctured spot on the posterior part; sides of the propodeum strongly reticulate; first tergite coarsely, longitudinally striato-reticulate, the striae predominating, no complete, well defined median stria; second and third tergites sculptured similarly to the first, but not so strongly so; the apex of the third tergite almost impunctate and shining, as are the following tergites.

Black; palpi pale brown; mandibles, scape, pedicel, tegulae in part, rufo-ferruginous; legs ferruginous; wings hyaline, iridescent, venation pale brown, stigma dark brown.

Chain Bridge, District of Columbia. Described from one female recorded under Bureau of Entomology Number Hopk. U. S. 10219a, collected by Mr. C. T. Greene and reared from species of *Agromyza*. A paratype from Ithaca, New York.

Type.—Cat. No. 16474, U. S. N. M.

New American Diptera.

By J. R. MALLOCH.

The species included in this paper are described from types in the Academy of Natural Sciences, Philadelphia.

Hydrotaea cressoni, new species.

Male.—Glossy black, with a distinct bluish tinge. Frontal lunule, face and eye margins beneath level of antennae silvery pollinose. Proboscis and palpi black. Mesonotum without any indications of stripes or pollinosity. Abdominal segments 3, 4 and 5 with a very distinct, elongate, anterior marginal spot on each side, forming an interrupted white fascia on each segment. Legs black. Wings clear. Calyptrae white, margins and fringe yellowish. Halteres yellow.

Eyes distinctly, but not thickly, pubescent; frontal stripe narrow; third antennal joint not twice as long as second; arista with an elongate swelling at base, microscopically pubescent; cheeks linear, bristles numerous and moderately strong; palpi elongate, with numerous hair-like bristles.

Two pairs of presutural and four pairs of postsutural macrochaetae on mesonotum; acrostichals indistinguishable from the rather long discal hairs.

Fore femur with a short, sharp, forwardly directed tooth at about apical fourth on the postero-ventral surface, on the base of which, on the posterior side, are 2 bristles; antero-ventral surface with an elongate, ridge-like callosity slightly nearer to base of femur; bristles at base on postero-ventral surface very long, decreasing in length to middle; beyond the postero-ventral thorn there are 2-3 short bristles on same surface; fore tibia attenuated at base, hollowed out on ventral surface, the postero-ventral margin with a slightly raised ridge on middle; one long bristle on apical third of postero-ventral surface, one, shorter, on dorsal surface nearer to apex and another short one at apex on almost the posterior surface; fore metatarsus as long as next 3 joints. Mid femur thin, slightly curved, and except at near base almost bare; mid tibia without any bristles. Hind femur elongated, reaching slightly beyond apex of abdomen, curved, and slightly dilated on beyond middle; ventral surface with two short, closely approximated thick thorns, which have the tips dilated; anterior surface with a row of bristles which become longer and stronger, are more widely placed and descend slightly as they approach apex of femur; postero-ventral surface bare; hind tibia curved, apically becoming slightly thicker, and four-fifths as long as femur; ventral surfaces on apical half with numerous closely placed hair-like bristles which are at middle rather more than equal in length to the tibial diameter, and rapidly decrease in length to apex; dorsal bristle very long; antero-dorsal surface with a series of short bristles from base to upper antero-dorsal bristle.

Wings with veins 3 and 4 slightly convergent; last section of fourth vein $2\frac{1}{2}$ times as long as penultimate section. Calyptae with the lower scale distinctly protruding. Length 4.5 mm.

Holotype: Cloudcroft, New Mexico, May 24, 1902, (H. L. Viersck). Type No. 6053.

Allied to *ciliata*, Fabricius, but the absence of the very long mid femoral apical bristles, so conspicuous in that species, readily distinguishes it from *ciliata*.

Pseudostenophora bispinosa n. sp.

Female.—Black, subopaque. Antennae, tibiae and tarsi brownish-yellow. Wings slightly grayish. Halteres yellow, knob black-brown.

Frons twice as broad as long; second row of bristles straight, one pair of bristles only in first row; antennae normal in size; arista nearly twice as long as width of frons, distinctly pubescent; palpi

slightly larger than third joint of antenna, with several end bristles; proboscis thickened and enlarged, almost identical in form with that of *Aphiochaeta rostrata* Brues.

Mesonotum with 1 pair of dorso-centrals; scutellum with 2 bristles.

Abdomen almost bare, anal organs hairy.

Fore tibia with 1 dorsal bristle before the middle; mid tibia with the normal 2 on basal third very weak, and the one at apex not distinguishable; hind tibia without any bristle, or with a weak one on antero-dorsal surface before middle.

Costa to about three-fifths the wing length, first division equal to 2 plus 3, 3 about three-fourths as long as 2; fourth vein leaving third at about midway from fork to apex with a very decided curve (as in *Truphconcura vitrinervis* Malloch) and ending almost at wing tip; seventh vein less distinct than the others, but complete; costal fringe fine and close, its length equal to about twice the diameter of costal vein. Length 1.5 mm.

Holotype ♀, Westville, New Jersey, April 11, 1900. Type No. 6054.

Paratypes: 6 specimens with same data.

I consider that this species belongs to the genus in which I have placed it rather than to *Truphconcura* with which it has certain affinities. The species in the latter forms have the seventh vein interrupted except in the case of the female of *lugubris* Meigen, which has that vein complete, but indistinct. There is a close resemblance between certain species in *Truphconcura* and others in *Pseudostenophora*, but so far as I have seen the following set of characters may be relied upon to distinguish the species of the latter forms from all other Phorid genera: Frons much broader than long; mesonotum with 1 pair of dorso-centrals; scutellum with 2 bristles; male hypopygium large, but without any projecting anal organ and not highly chitinised as in *Truphconcura*; legs with generally the following bristles: 1 on fore tibia, 2 weak ones at basal third of mid tibia, and occasionally a weak one at apex, and the hind tibia never with more than one bristle; third vein of wing forked.

This is the first species of the genus that I have seen from America.

Paraspiniphora pennsylvanica n. sp.

Male and female.—Black, shining. Knee joints yellowish. Halteres yellow. Wings slightly browned.

Frons glossy, distinctly broader than long, the surface with numerous short hairs; first and second rows of (4) bristles almost straight; one pair of post-antennals present; male antennae enlarged, third joint about half as large as eye; female antennae slightly enlarged, third joint about one-third the size of eye; arista bare, its length about equal to $1\frac{1}{2}$ times the width of frons; palpi and proboscis in both sexes normal, the former moderately bristled; one very long, downwardly directed bristle on cheek in both sexes.

Mesonotum with 1 pair of dorso-centrals; basal pair of scutellar bristles much weaker than apical pair in both sexes.

Abdomen almost bare; male hypopygium with numerous hairs.

Fore tibia with 3-4 serial bristles on dorsal surface from base to apex; mid tibia with 3 antero-dorsal bristles, 2 on basal half and one near apex, and 4-5 on almost the dorsal surface from base to apex; hind tibia with generally 10 bristles, 5 on the dorsal and 5 on the antero-dorsal surfaces, arranged in pairs, besides the apical spurs; no ventral bristles present on either of the posterior pairs of tibia.

Costa to middle of wing; first division about 1 1-3 times as long as 2 plus 3, 3 half as long as 2; fourth vein slightly bent at base, leaving just beyond fork of third and ending almost in fore margin of wing owing to its gradual forward inclination; one strong bristle present on base of third vein; costal fringe close and fine, equal in length to about twice the diameter of costal vein. Length 3-4 mm.

Holotype: ♀, Swarthmore, Delaware County, Pennsylvania, March 30, 1905 (E. T. Cresson, Jr.). Type No. 6055.

Paratypes: 1 male and 1 female same data.

Resembles *spinosissima* Strobl, and *spinulosa* Malloch, but differs in chaetotaxy from both.

Aphiochaeta submanicata n. sp.

Male.—Yellow, slightly shining. Frons brown, surface with grayish pollinosity; antennae brownish yellow, arista brown; palpi clear yellow. Mesonotum reddish yellow on disk; pleurae yellow, with a large blackish patch below wing base; postnotum black-brown. Abdomen black-brown on dorsum; basal segment yellowish at base; each segment with but slight indications of a pale posterior margin; anal protuberance and hypopygium yellow. Legs yellow, mid coxa with a black streak on posterior surface; apices of hind femora blackened. Wings clear; veins brownish, very distinct except at apices of thin veins. Halteres clear yellow.

Frons slightly longer than broad; lower post-antennals not half as large as the strong upper pair; central pair of bristles in first row slightly below level of upper post-antennals and nearer to them than to eye margin; outer pair in same row slightly higher placed than upper post-antennals and about as far from the central pair as from eye margin; antennae of moderate size; arista slightly longer than frons, slightly pubescent; palpi large, the size exceeding that of the third antennal joint, almost bare, the bristles very short.

Scutellum with 4 bristles; mesopleura with numerous short bristles.

Abdomen tapering; second segment slightly the longest, the others subequal; last 2 with numerous short discal hairs and a few longer posterior marginal hairs; second segment with several lateral hairs which are not very conspicuous; anal protuberance large, well exposed, the apex with the usual curved hairs.

Basal joint of fore tarsus about three-fifths as long as fore tibia, and slightly longer than joints 2 plus 3, much swollen, as thick as tibia; hind femur with soft hairs to middle on ventral surface; hind tibial setulae very weak and hair-like.

Costa to wing middle; first division slightly longer than second, and shorter than 2 plus 3, third division slightly less than half as long as second; fourth vein leaving at beyond fork of third with a slight bend and ending, recurved, at before wing tip; costal fringe equal in length to interior arm of fork (free end of vein 2). Length 1.5 mm.

Holotype: Frankford, Philadelphia, September, 1913, (J. R. Malloch). Type No. 6056. Taken indoors on window.

This species is allied to *projecta* Becker, but differs materially in wing venation. It shows a nearer approach to *magnipalpis* Aldrich in venation but differs in coloration and other characters from that species.

Leptocera (Limosina) subpiligera, n. sp.

Male.—Black-brown, slightly shining. Face and cheeks, distinctly whitish gray pollinose; pleurae, lateral margins of mesonotum narrowly, and abdomen on sides gray pollinose. Legs black-brown. Wings clear, veins black, vein 4 traceable to margin though not darkened beyond cross-vein, vein 5 not distinguishable beyond cross-vein. Halteres with yellow knob and darkened pedicel.

Frons entirely shining; all bristles strong, the two orbital bristles subequal in size, anterior to the lower one there are several short setulae; divergent ventral rows of setulae distinct, incurved; 5-6 in number, increasing in length from upper to lower extremities; face

buccate between antennae, slightly concave on middle, mouth margin not produced; cheek less than half as high as eye at its lowest part and gradually increasing in height posteriorly; vibrissa strong and long, incurved, behind the vibrissa there is an almost equally strong bristle which is upcurved and reaches almost to middle of eye. Marginal bristles distinct and not particularly numerous; mouth opening large, labrum slightly protruding, proboscis broad, at apex sucker-like, short; palpi small, with a few weak bristles; antennae rather above the average size, standing well clear of the eyes, third joint pilose, broader but barely longer than second, which has on the inner side at apex several distinct setulae; arista tapering, basal joints distinct, but slightly thickened; pubescence sparse, distinct from slightly beyond base, arista in length equal to from its base to vertex; eye bare, distinctly longer than high.

Mesonotum with posthumeral bristle strong, incurved; three pairs of dorso-centrals present; acrostichals distinct from near anterior margin, between them and the anterior dorso-central there are 3-4 rows of short discal setulae; scutellum with eight marginal bristles as in *fontinalis* Fallen, disk bare; postnotum glossy black.

Abdomen shorter than thorax, cylindrical in shape; second segment much elongated, the others short, all segments with numerous hairs, which are particularly noticeable, long and bristle-like laterally on apical segments; hypopygium rounded, large, knob-like, its surface, particularly on venter, covered with numerous rather long hairs.

Legs strong; fore tarsi gradually and distinctly dilated from base to apex; mid-tibia with seven dorsal bristles (2:2:3) and 1-2 on ventral surface; mid-trochanter with a strong bristle; apex of mid-metatarsus with 3-4 end bristles; hind femur with a series of 5-6 bristles on apical half of antero-ventral surface; hind tibia with four rows of hair-like bristles, one on almost the ventral surface from base to apex, which is longest on middle, one rather shorter on anterior surface which is rather longest at base, one on dorsal surface consisting of 6-7 rather widely placed bristles, and a fourth much shorter on the postero-dorsal surface which is regularly and rather widely spaced and becomes longer toward apex; hind tarsus thickened, joints about, 2:3:1½:1:2.

Wings with costa to end of vein 3, second costal division 1 2-3 times as long as third; costa setulose to end of first vein; outer cross-vein distinctly before the vertical line of apex of vein 2, the section of vein 4 between cross-vein equal to basal section of vein 3; outer cross-vein about half as long as section of vein 4 preceding it; last section of vein 3 slightly but gradually and appreciably bent forward.

Length, 2½ mm.

Holotype, male, Hazleton, Pa., August 7, 1909, (Dr. Dietz), Type No. 6057.

Paratype: 1 male with same data.

This species comes close to both *piligera*, Stenh., and *zosteræ* Haliday, but differs in venation from both of those species.

Mantis religiosa Linnaeus, in Rochester, New York, in 1913
(Orthop.)

One day, early in September, while collecting some *Colias philodice*, etc., I was amazed to find a large female mantis. I would not have observed it had it not been for a *Xylocopa virginica* which I was transferring from my net to the killing bottle, and in doing so, knelt on the ground. This must have aroused the mantis from its hiding place. Being unaware of its habits, I picked up the specimen, but dropped it just as quickly, being pierced by the fore legs, which gave me a swollen finger for several days. The females hide under long grasses, etc., and to collect them they must be aroused from their hiding places.

They vary greatly in color. Some individuals are almost gray, while others are green, yellow, pale brown or dark brown.

The males resemble a katydid in their flight, and differ very greatly from the females in regard to habits. They can be found flying from bush to bush, but are by no means common.

The species interested me so much that I wrote to Mr. A. N. Caudell, U. S. Nat. Mus., Washington, D. C., for its identification, etc. It proved to be *Mantis religiosa* L., introduced into this vicinity some years ago. As it is an insect of predaceous habits, eating other insects, etc., it should be therefore protected. A few beneficial insects may be destroyed by it, but, on the whole, it is to be regarded as a friend.

After becoming aware of their habits, I had no trouble in finding them in considerable numbers. In all, I must have taken 200 or more, two-thirds of which are females. The males are very slender, and resemble *Stagmomantis carolina* very closely, being about $1\frac{3}{4}$ to 2 inches in length. The females measure from $2\frac{1}{4}$ to $2\frac{1}{2}$ inches, and are much stouter in form.

I found a small quantity of egg-masses generally attached to the weeds or grasses, within two or three inches from the ground. They measure from $1\frac{1}{4}$ to $1\frac{3}{4}$ inches in length. I shall try to raise these and take all possible notes. Should I be fortunate enough to get the complete metamorphosis, I will publish the results for the sake of some of our collectors.—ROBERT SCHMALTZ, 319 Central Park, Rochester, N. Y.